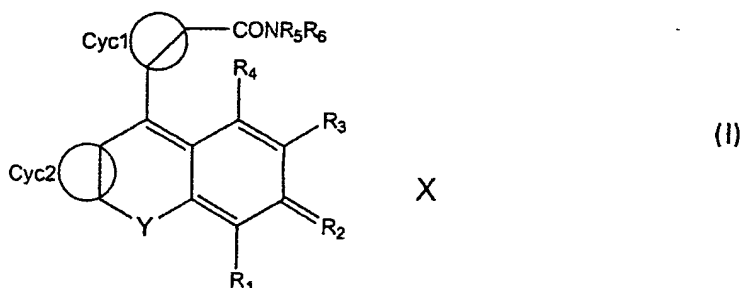


# **AMENDMENTS TO THE CLAIMS WITH MARKINGS TO SHOW CHANGES MADE, AND LISTING OF ALL CLAIMS WITH PROPER IDENTIFIERS**

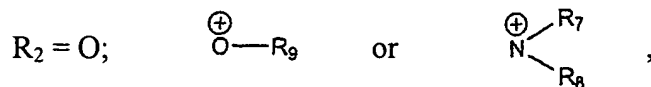
1. (Original) A carboxamide-substituted dye of the formula (I)



in which

Y = oxygen, sulfur, selenium, CR<sub>a</sub>R<sub>b</sub>, NR<sub>c</sub>, a direct linkage or is -R<sub>14</sub> and -R<sub>15</sub>;

R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> are independently hydrogen, halogen, -O<sup>⊖</sup>, a hydroxyl group, thiol group, amino group, ammonium group, sulfo group, phospho group, nitro group, carbonyl group, carboxyl group, a carboxylic acid derivative, a nitrile group, isonitrile group, cyanate group, isocyanate group, thiocyanate group, isothiocyanate group or a straight-chain, branched or cyclic saturated or unsaturated hydrocarbon group having up to 40 carbon atoms; R<sub>a</sub>, R<sub>b</sub>, R<sub>c</sub> and R<sub>14</sub>, R<sub>15</sub> independently are as defined for R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>;

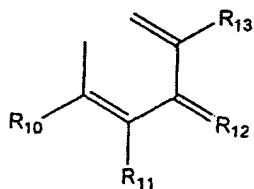


in which

R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub> independently are hydrogen or a straight-chain, branched or cyclic saturated or unsaturated hydrocarbon group having up to 40 carbon

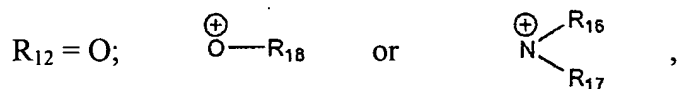
atoms; or

R<sub>1</sub> together with R<sub>2</sub> is



in which

R<sub>10</sub>, R<sub>11</sub>, R<sub>13</sub> are as defined for R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>;



in which

R<sub>16</sub>, R<sub>17</sub>, R<sub>18</sub> are as defined for R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>;

R<sub>5</sub>, R<sub>6</sub>, independently are a straight-chain, branched or cyclic saturated or unsaturated hydrocarbon group having up to 40 carbon atoms;

Cyc1 is an organic moiety which comprises a ring system selected from aromatic, heteroaromatic, quinoidal and cycloaliphatic rings;

Cyc2 is an organic moiety which comprises a ring system selected from aromatic, heteroaromatic, quinoidal and cycloaliphatic rings;

each of said moieties in the dye of the formula (I) being able to form a ring system with one or more neighboring moieties;

and X being one or more mono- or multivalent anions, when required for balancing the charge;

with the proviso that

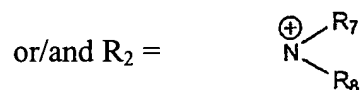
- Y = oxygen,
- Cyc1 = phenyl or substituted phenyl,
- Cyc2 = hydroxyl-, ether- or ester-substituted phenyl

and

- $R_2 = O$

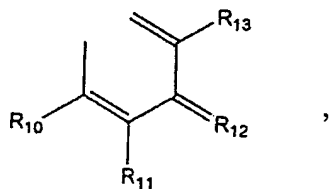
do not appear in the formula (I) at the same time.

2. (Original) The carboxamide-substituted dye as claimed in claim 1, in which Cyc2 is a nitrogen-containing heterocycle or a ring system substituted with at least one amino group



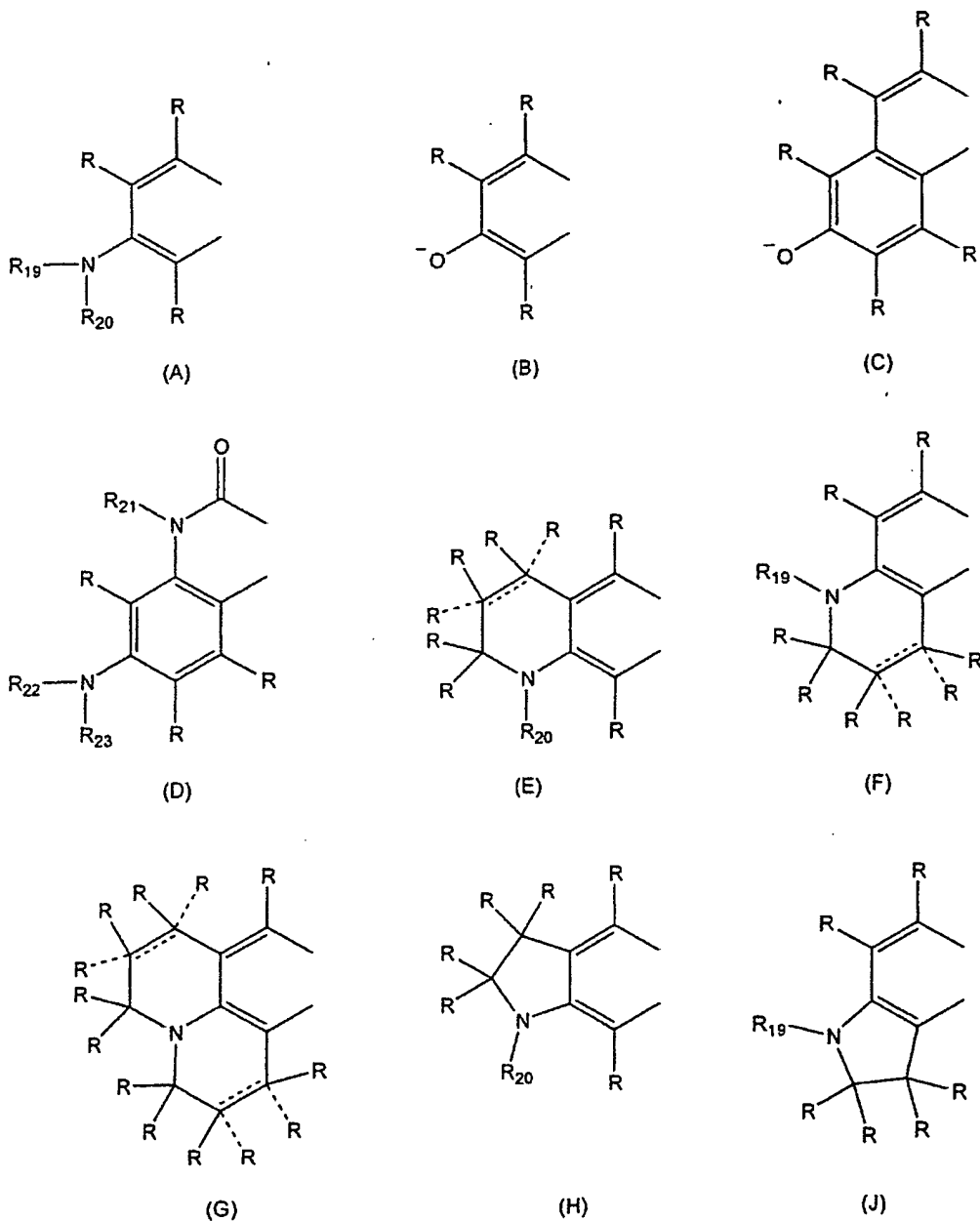
or,

together with  $R_1 =$



in which  $R_7, R_8, R_{10}, R_{11}, R_{13}$  and  $R_{16}, R_{17}$  are as defined in claim 1.

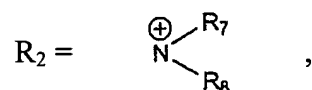
3. (Currently amended) The carboxamide-substituted dye as claimed in claim 1 or 2, in which Cyc2 in the formula (I) has a structure (A), (B), (C), (D), (E), (F), (G), (H) or (J),



in which R in each case independently is defined as R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> in claim 1;  
 R<sub>19</sub>, R<sub>20</sub> and R<sub>22</sub>, R<sub>23</sub> are independently defined as R<sub>7</sub>, R<sub>8</sub> in claim 1; and

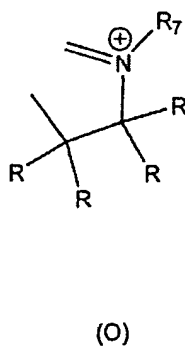
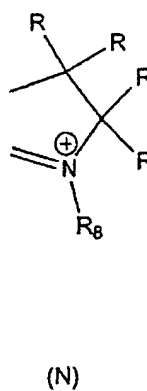
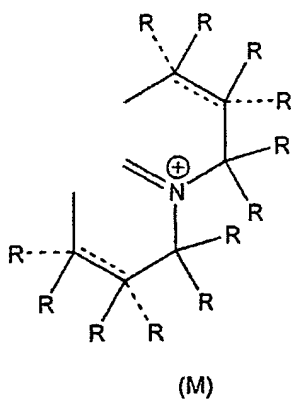
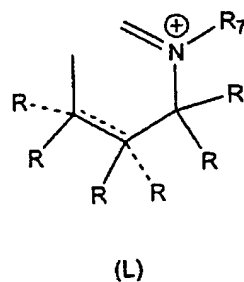
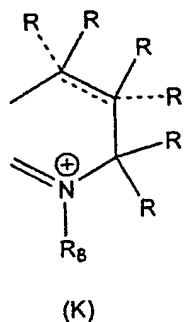
R<sub>21</sub> is defined as R<sub>7</sub> in claim 1 and the dashed lines are optionally double bonds in the presence of which the moieties bound via a dashed line are absent.

4. (Currently amended) The carboxamide-substituted dye as claimed in claim 1 ~~any of the preceding claims~~, in which Cyc1 is substituted or unsubstituted phenyl, naphthyl, pyridyl or cyclohexyl.
5. (Currently amended) The carboxamide-substituted dye as claimed in claim 1 ~~any of the preceding claims~~, in which



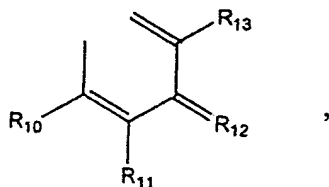
where R<sub>7</sub> and R<sub>8</sub> are as defined in claim 1.

6. (Currently amended) The carboxamide-substituted dye as claimed in claim 5, in which R<sub>1</sub> is bridged with R<sub>8</sub> ~~or/and~~ or R<sub>3</sub> is bridged with R<sub>7</sub> or R<sub>1</sub> is bridged with R<sub>8</sub> and R<sub>3</sub> is bridged with R<sub>7</sub> and forms a ring system.
7. (Currently amended) The carboxamide-substituted dye as claimed in claim 6, in which the ring system comprises ~~system/s comprise(s)~~ 5- or 6-membered rings.
8. (Currently amended) The carboxamide-substituted dye as claimed in claim 7, in which a ring system of the structure (K), (L), (M), (N) or (O) is formed:



in which R in each case are independently is defined as R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>7</sub>,  
 R<sub>8</sub> are as defined in claim 1,  
 and the dashed lines are optionally double bonds in the presence of which  
 the moieties bound via a dashed line are absent.

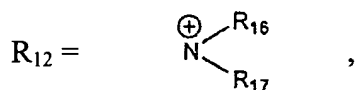
9. (Currently amended) The carboxamide-substituted dye as claimed in ~~any of claims 1 to 4~~ claim 1, in which  $R_2$  together with  $R_1$  is



where  $R_{10}$ - $R_{13}$  are as defined in claim 1.

10. (Original) The carboxamide-substituted dye as claimed in claim 9, in which  $R_{12} = O$ .

11. (Original) The carboxamide-substituted dye as claimed in claim 9, in which



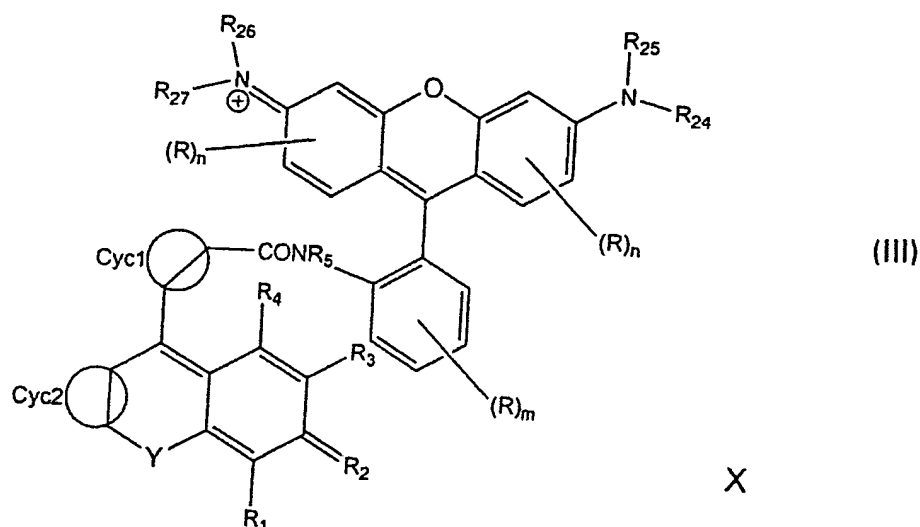
where  $R_{16}$  and  $R_{17}$  are as defined in claim 1.

12. (Currently amended) The carboxamide-substituted dye as claimed in claim 1 ~~any of the preceding claims~~, in which  $Y = \text{oxygen}$ .
13. (Currently amended) The carboxamide-substituted dye as claimed in claim 1 ~~any of claims 1 to 11~~, in which  $Y = \text{sulfur, selenium or } CR_aR_b$ ,  $R_a$  and  $R_b$  being as defined in claim 1.
14. (Currently amended) The carboxamide-substituted dye as claimed in ~~any of claims 1 to 11~~ claim 1, in which  $Y = r$  moieties  $-R_{14}$  and  $-R_{15}$ ,  $R_{14}$  and  $R_{15}$

being as defined in claim 1.

15. (Original) The carboxamide-substituted dye as claimed in claim 8, in which Cyc1 is optionally substituted phenyl, Cyc2 has the structure (E) and Y = oxygen and R<sub>7</sub> and R<sub>3</sub> form a ring system (K), R<sub>7</sub> and R<sub>3</sub> being as defined in claim 1.
16. (Original) The carboxamide-substituted dye as claimed in claim 8, in which Cyc1 is optionally substituted phenyl, Cyc2 has the structure (A) and Y = sulfur, selenium or CR<sub>a</sub>R<sub>b</sub>, R<sub>a</sub> and R<sub>b</sub> being as defined in claim 1.
17. (Currently amended) A multichromophore system in which a carboxamide-substituted dye as claimed in ~~any of claims 1 to~~ claim 1 is coupled via R<sub>5</sub> or/and R<sub>6</sub> to one or more further dye molecules, R<sub>5</sub> and R<sub>6</sub> being as defined in claim 1.
18. (Original) The multichromophore system as claimed in claim 17, in which the one or more further dye molecules are carboxamide-substituted dyes as claimed in any of claims 1 to 16.
19. (Original) The multichromophore system as claimed in claim 18, in which coupling takes place on R<sub>5</sub> or/and R<sub>6</sub> of the further carboxamide-substituted dyes, R<sub>5</sub> and R<sub>6</sub> being as defined in claim 1.
20. (Original) The multichromophore system as claimed in claim 17 of the formula (III)

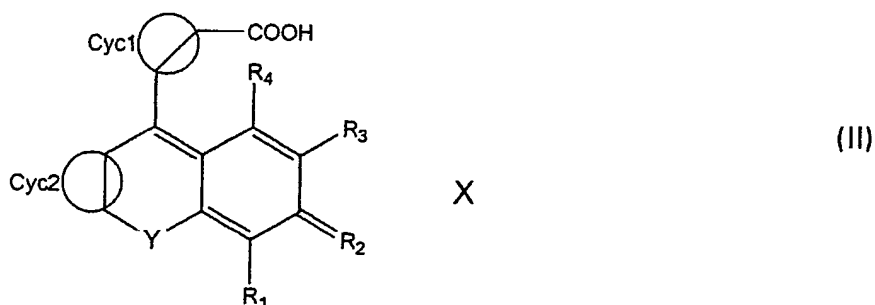




where the moieties are as defined in claim 1, R in each case independently is defined as R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> and R<sub>24</sub>, R<sub>25</sub> and R<sub>26</sub>, R<sub>27</sub> are defined as R<sub>7</sub>, R<sub>8</sub> in claim 1, with n independently being 0, 1, 2 or 3 and m being 0, 1, 2, 3 or 4.

21. (Currently amended) A process for preparing carboxamide-substituted dyes of the formula (I) as claimed in ~~any of claims 1 to 16~~ claim 1, comprising the following steps:

(a) converting the carboxyl group of a dye of the formula (II)



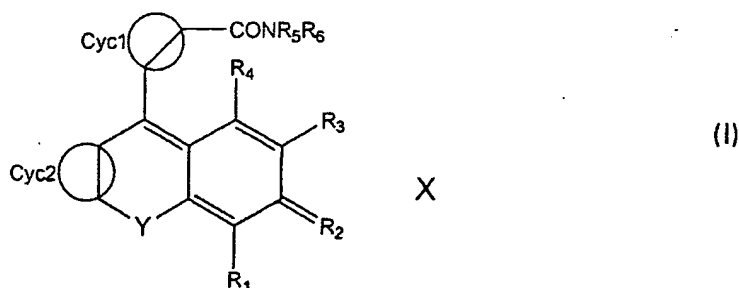
in which the moieties are defined as indicated in claim 1, into an activated form;

(b) reacting the activated dye obtained in step (a) with a secondary amine HNR<sub>5</sub>R<sub>6</sub>; and

- (c) optionally isolating the carboxamide-substituted dye of the formula (I) obtained in step (b).
22. (Original) The process as claimed in claim 21, in which step (a) is carried out at temperatures of from room temperature to 60°C.
23. (Currently amended) The process as claimed in claim 21 ~~or 22~~, in which an aprotic solvent is used in step (b).
24. (Currently amended) The process as claimed in ~~any of claims 21 to 23~~ claim 21 in which N-hydroxysuccinimide, N-hydroxyphthalimide, N-hydroxynaphthalimide, O-(N-succinimidyl)-N,N,N',N'-tetramethyluronium tetrafluoroborate (TSTU) are used for activation.
25. (Cancelled);
26. (Currently amended) The ~~use~~ method as claimed in claim ~~33~~ 25, in which the carboxamide-substituted dye of the formula (I) is coupled to at least one of the analyte to be detected ~~or/and~~ and to a component of at least one of a detection reagent ~~or/and~~ and to a support.
27. (Currently amended) The ~~use~~ method as claimed in claim ~~25 or 26~~, in which detection comprises at least one of an immunological detection ~~or/and~~ and detection by way of nucleic acid hybridization.
28. (Currently amended) A conjugate of a carboxamide-substituted dye of the formula (I) as claimed in ~~any of claims 1 to 16 and~~ claim 1 wherein the carboxamide-substituted dye is coupled to a binding partner.
29. (Currently amended) The conjugate as claimed in claim 28, in which the binding partner is selected from the group consisting of ~~among~~ peptides,

polypeptides, nucleic acids, nucleosides, nucleotides, nucleic acid analogs and haptens.

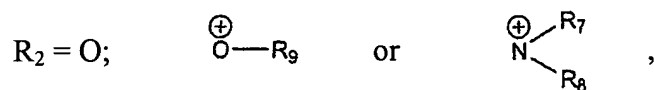
30. (Currently amended) The ~~use of a conjugate~~ method as claimed in claim ~~28 or 29~~ 26 in which the carboxamide-substituted dye is coupled to a binding partner and detection is carried out by nucleic acid hybridization processes and immunochemical processes.
31. (Currently amended) The ~~use~~ method as claimed in claim 26 ~~or 27~~, in which ~~coupling to the analyte to be detected or/and the component of a detection reagent or/and the support~~ takes place via the substituents  $R_5$  or/and  $R_6$  of the carboxamide-substituted dye of the formula (I), the moieties  $R_5$  and  $R_6$  being as defined in claim 1.
32. (Original) The use as claimed in claim 31, in which coupling is carried out via a covalent bond.
33. (New) A method of detecting an analyte using carboxamide-substituted dye comprising the steps of providing one or more compounds of the general formula (I)



for determining at least one of the qualitative and quantitative presence of the analyte with a detection agent;  
wherein

Y = oxygen, sulfur, selenium, CR<sub>a</sub>R<sub>b</sub>, NR<sub>c</sub>, a direct linkage or is -R<sub>14</sub> and -R<sub>15</sub>;

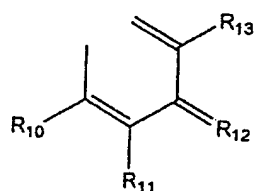
R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub> are independently hydrogen, halogen, -O<sup>⊖</sup>, a hydroxyl group, thiol group, amino group, ammonium group, sulfo group, phospho group, nitro group, carbonyl group, carboxyl group, a carboxylic acid derivative, a nitrile group, isonitrile group, cyanate group, isocyanate group, thiocyanate group, isothiocyanate group or a straight-chain, branched or cyclic saturated or unsaturated hydrocarbon group having up to 40 carbon atoms; R<sub>a</sub>, R<sub>b</sub>, R<sub>c</sub> and R<sub>14</sub>, R<sub>15</sub> independently are as defined for R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>;



in which

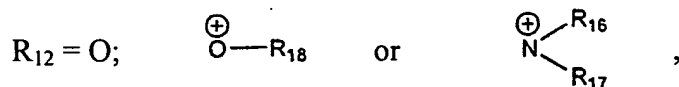
R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub> independently are hydrogen or a straight-chain, branched or cyclic saturated or unsaturated hydrocarbon group having up to 40 carbon atoms; or

R<sub>1</sub> together with R<sub>2</sub> is



in which

R<sub>10</sub>, R<sub>11</sub>, R<sub>13</sub> are as defined for R<sub>1</sub>, R<sub>3</sub>, R<sub>4</sub>;



in which

$R_{16}$ ,  $R_{17}$ ,  $R_{18}$  are as defined for  $R_7$ ,  $R_8$ ,  $R_9$ ;

$R_5$ ,  $R_6$ , independently are a straight-chain, branched or cyclic saturated or unsaturated hydrocarbon group having up to 40 carbon atoms;

Cyc1 is an organic moiety which comprises a ring system selected from aromatic, heteroaromatic, quinoidal and cycloaliphatic rings;

Cyc2 is an organic moiety which comprises a ring system selected from aromatic, heteroaromatic, quinoidal and cycloaliphatic rings;

each of said moieties in the dye of the formula (I) being able to form a ring system with one or more neighboring moieties;

and X being one or more mono- or multivalent anions, when required for balancing the charge;

with the proviso that

- Y = oxygen,
- Cyc1 = phenyl or substituted phenyl,
- Cyc2 = hydroxyl-, ether- or ester-substituted phenyl

and

- $R_2 = O$

do not appear in the formula (I) at the same time.